FLEXIDOME IP dynamic 7000 RD

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Invented for life

- High Dynamic Range to see details in bright and dark areas simultaneously
- Intelligent noise reduction reduces bandwidth and storage requirements by up to 50%
- High-impact, ruggedized enclosure with choice of lens
- Auto back focus for fast installation
- Content-based scene analysis optimizes the image processing

The high dynamic range FLEXIDOME IP dynamic 7000 RD camera combines intelligence with adaptive video processing to bring you high performance content-based imaging in any security or surveillance scenario, day or night.
The camera uses an internal feedback system based on the intelligent analysis of the scene, to re-tune the video processing. This provides better detail in the areas that matter and better all-round performance.

System overview

Functions

High Dynamic Range
The High Dynamic Range (HDR) of the camera means that you can view details in the bright and the dark areas of a scene at the same time. HDR is based on a dual exposure process that captures more details in highlights and shadows even under challenging lighting conditions. The result is that you can distinguish objects and features easily.

Content Based Imaging Technology
Content Based Imaging Technology (CBIT) is used to radically improve image quality in all lighting conditions and to identify areas for enhanced processing. The camera examines the scene using Intelligent Video Analysis (IVA) and provides feedback to re-tune the image processing. This provides better detail in the areas that matter and better all-round performance. With IVA, the Intelligent Auto Exposure technology, for example, allows you to view moving objects in bright and dark areas of a scene.

Intelligent Dynamic Noise Reduction reduces bandwidth and storage requirements
The camera uses Intelligent Dynamic Noise Reduction which actively analyzes the contents of a scene and reduces noise artifacts accordingly.
The low-noise image and the efficient H.264 compression technology provide clear images while reducing bandwidth and storage by up to 50% compared to other H.264 cameras. This results in reduced-bandwidth streams that still retain a high image quality and smooth motion. The camera provides the most usable image possible by cleverly optimizing the detail-to-bandwidth ratio.

Flexible lens choice
The camera comes with a choice of tele, mid-range, and ultra wide angle lenses. These varifocal SR (Super Resolution) lenses have an advanced iris design to ensure that the high resolution HD sensor produces

the sharpest image possible, even in the corners. The optically corrected ultra wide angle lens provides outstanding performance without the need for de-warping software.

Simple installation
The camera has a very intuitive user interface that allows fast and easy configuration. Six configurable user modes are provided with the best settings for a variety of applications:

- Outdoor – general day-to-night changes with sun highlights and street lighting
- Indoor – general day-to-night changes without sun highlights and street lighting
- Motion – monitoring traffic or fast moving objects; motion artifacts are minimized
- Lowlight – optimized for sufficient details at low light.
- Intelligent AE – for people moving in front of a bright background.
- Vibrant – enhanced contrast, sharpness and saturation

The auto-focus lens wizard makes it easy for an installer to accurately focus the camera for both day and night operation. The wizard is activated from the web browser or from the on-board camera push button making it easy to choose the workflow that suits best. The automatic motorized back focus adjustment with 1:1 pixel mapping ensures the camera is always focused accurately.

Streams
The innovative multi-streaming feature delivers various H.264 streams together with an M-JPEG stream. These streams facilitate bandwidth-efficient viewing and recording as well as integration with third-party video management systems.
An upright mode can be selected for the second stream. In this mode an image of 400 x 720 (9:16 aspect ratio) is cropped from the full sensor image. When the scene to be monitored is suitable to this mode, the bandwidth and storage requirements are reduced.

Storage management
Recording management can be controlled by the Bosch Video Recording Manager (VRM) or the camera can use iSCSI targets directly without any recording software.

Edge recording
The internal MicroSD card slot supports up to 2 TB of storage capacity. A microSD card can be used for local alarm recording. Pre-alarm recording in RAM reduces recording bandwidth on the network, or — if microSD card recording is used — extends the effective life of the storage medium.

Video analytics
With built-in video content analysis, the camera reinforces the Intelligence-at-the-Edge concept where edge devices become increasingly intelligent.

The latest generation of the Bosch Intelligent Video Analysis (IVA) software is the guard-assistant system of choice when reliable indoor or outdoor video analytics is needed. The state-of-the-art system reliably detects, tracks, and analyzes moving objects while suppressing unwanted alarms from spurious sources in the image.
The face detection feature detects faces in the scene and forwards a high quality JPEG image of the best shot of each face when the face disappears from the scene.
Retrospective forensic search capabilities are available remotely from the web browser or the Bosch Video Client.

Regions of interest
Two Regions of Interest (ROI) can be user defined. The remote electronic pan, tilt and zoom controls allow you to select specific areas of the parent image. These regions produce separate streams for remote viewing and recording. These streams, together with the main stream, allow the operator to separately monitor the most interesting part of a scene while still retaining situational awareness.
The IVA Intelligent tracker can also follow objects within the defined regions of interest. The Intelligent tracker can autonomously detect and track moving objects or the user can click on an object which the Intelligent tracker will then follow.

Rugged design
The cast-aluminum housing, polycarbonate window, and hardened inner liner can withstand the equivalent of 55 kg (120 lbs) of force (>IK10). Ideal for outdoor use, the camera is protected against water and dust to IP67 (NEMA -4X) standards. Using the proprietary pan/tilt/rotation mechanism, installers can select the exact field of view. Mounting options are numerous, including surface, wall, corner, and suspended-ceiling mounting.

Access Security
Password protection with three levels and 802.1x authentication is supported. To secure Web browser access, use HTTPS with a SSL certificate stored in the camera. The video and audio communication channels can be independently AES encrypted with 128-bit keys by installing the optional encryption site license.

Surveillance software
There are many ways to access the camera's video and IVA-based features: using a web browser, with the Bosch Video Management System, with the Bosch Recording System, with the free-of-charge Bosch Video Client, or with the video security mobile App.
The Bosch Video Client PC surveillance software offers a user-friendly interface to support easy installation and configuration. It also provides easy live viewing of multiple cameras, playback, forensic search and export.
Access to IVA metadata is available to integrators via RTSP.

Video security App

The Bosch video security mobile App has been developed to enable **Anywhere** access to HD surveillance images allowing you to view live images from any location. The App is designed to give you complete control of all your cameras, from panning and tilting to zoom and focus functions. It's like taking your control room with you.
This App, together with the separately available Bosch transcoder, will allow you to fully utilize our dynamic transcoding features so you can play back images even over low-bandwidth connections.

Connections

The camera conforms to the ONVIF (Open Network Video Interface Forum) Profile S specification which guarantees interoperability between network video products regardless of manufacturer. For trouble-free network cabling, the camera supports Auto-MDIX which allows the use of straight or cross-over cables. Camera power is supplied via PoE (Power-over-Ethernet) or via the 24 VAC/12 VDC connector. Third-party integrators can easily access the internal feature set of the camera for integration into large projects. Visit the Bosch Integration Partner Program (IPP) website (ipp.boschsecurity.com) for more information.

Some typical applications

- Tunnels – viewing details in bright and dark areas
- Entrances and exits – identification with strong backlight
- Traffic – capturing moving vehicles at night

Certifications and approvals

HD Standards

Complies with the SMPTE 274M-2008 Standard in:
- Resolution: 1920x1080
- Scan: Progressive
- Color representation: complies with ITU-R BT.709
- Aspect ratio: 16:9
- Frame rate: 25 and 30 frames/s

Complies with the 296M-2001 Standard in:
- Resolution: 1280x720
- Scan: Progressive
- Color representation: complies with ITU-R BT.709
- Aspect ratio: 16:9
- Frame rate: 25 and 30 frames/s

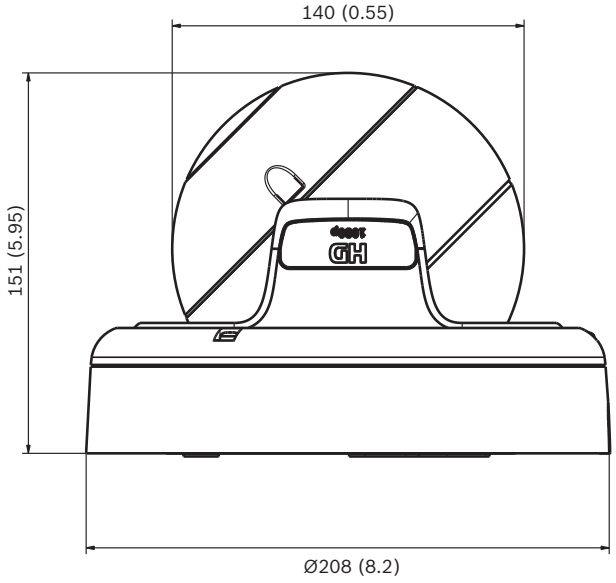
Standards	
Emission	EN 55022 Class B FCC Part 15 Class B
Immunity	EN 50130-4 (PoE, +12 VDC, 24 VAC)* EN 50121-4
Safety	EN 60950-1 UL 60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1
Vibration	Camera with lens as per IEC 60068-2-6 (5 m/s^2, operational)
ONVIF conformance	EN 50132-5-2; IEC 62676-2-3

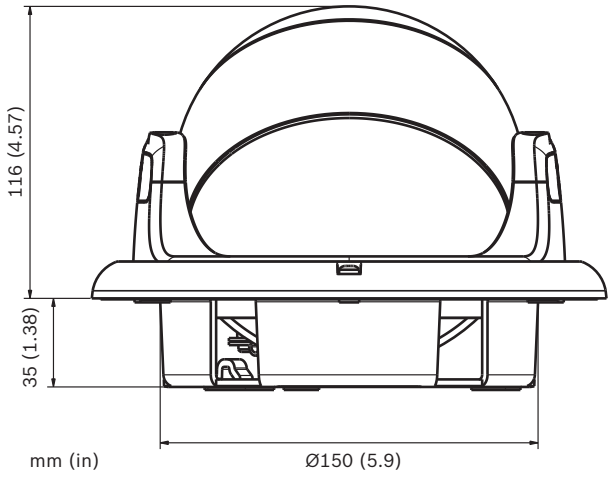
*Chapters 7 and 8 (mains voltage supply requirement) are not applicable to the camera. However, if the system in which this camera is used needs to comply with this standard, then any power supplies used must comply with this standard.

Region	Certification
Europe	CE
USA	UL
	FCC

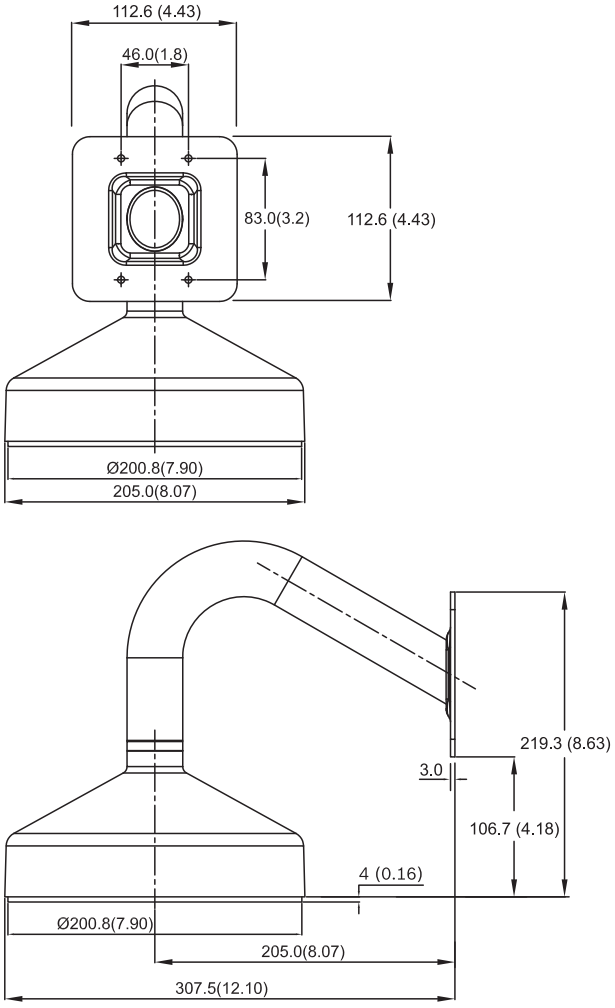
Installation/configuration notes

Dimensions

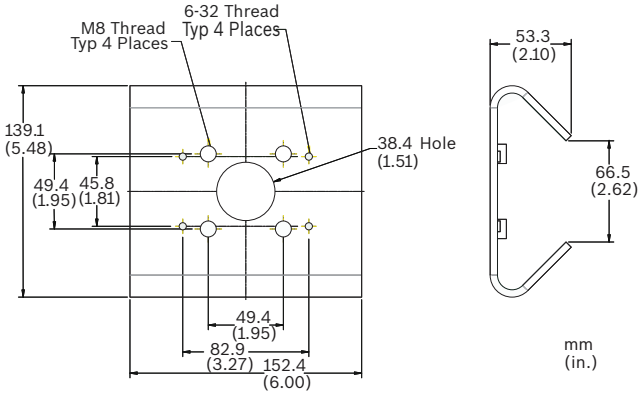




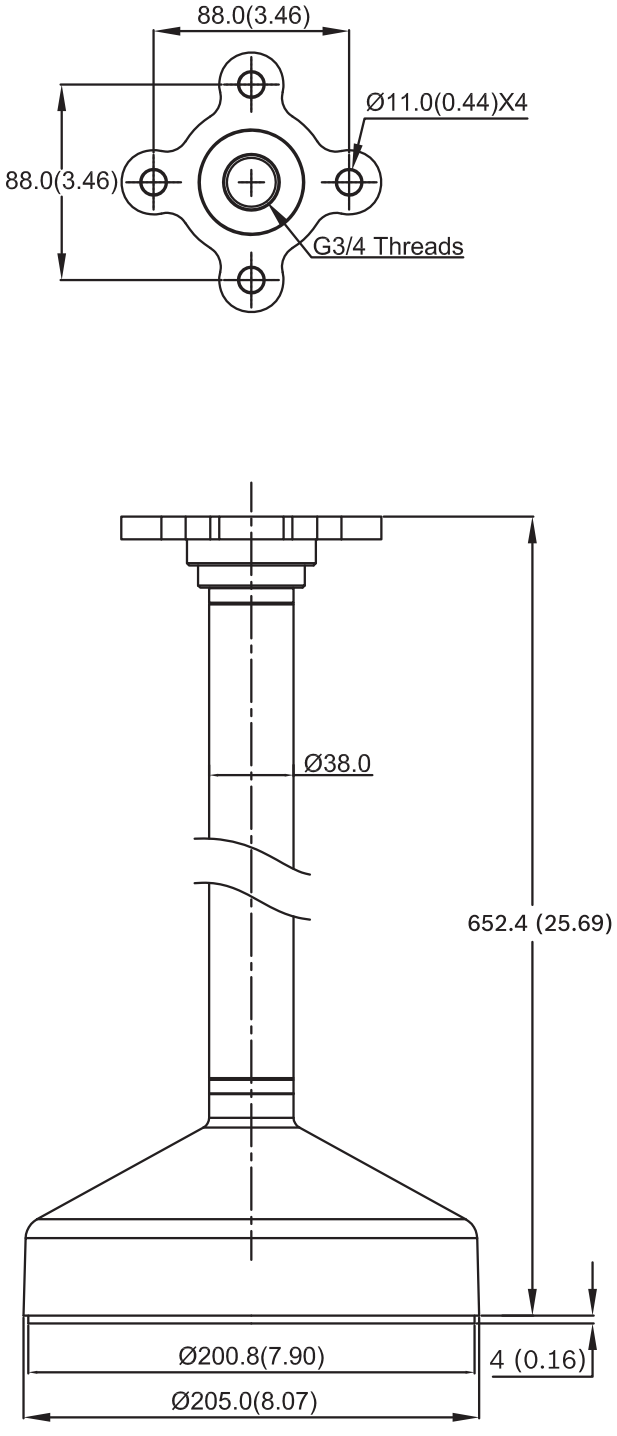
Mounting Brackets (not included)



VDA-832FHD-WMT Wall mount dimensions



LTC 9213/01 Pole Mount Adapter dimensions



VDA-832FHD-PMT Pipe mount dimensions

Parts included

Technical specifications

Electrical

Power Supply	24 VAC 50/60 Hz 12 VDC Power-over-Ethernet 48 VDC nominal
Current Consumption	1 A (12 VDC) 0.8 A (24 VAC) 0.3 A (PoE 48 VDC)
Power Consumption	12 W
PoE	IEEE 802.3af (802.3at Type 1)

Sensor

Type	1/3-inch CMOS HD
Pixels	2048 x 1536 (3MP)

Video streams

Video compression	H.264 (ISO/IEC 14496-10); M- JPEG, JPEG
Streaming	Multiple configurable streams in H.264 and M-JPEG, configurable frame rate and bandwidth. Regions of Interest (ROI)
Overall IP Delay	Min. 120 ms, Max. 240 ms
GOP structure	IP, IBP, IBBP
Encoding interval	1 to 30 (25) ips

Resolutions (H x V)

• 1080p HD	1920 x 1080
• 960p HD 4:3 (cropped)	1280 x 960
• 720p HD	1280 x 720
• D1 4:3 (cropped)	704 x 480
• SD upright (cropped)	400 x 720
• 480p SD	Encoding: 704 x 480; Displayed: 854 x 480
• 432p SD	768 x 432
• 288p SD	512 x 288
• 240p SD	Encoding: 352 x 240; Displayed: 432 x 240
• 144p SD	256 x 144

Sensitivity (3200 K, scene reflectivity 89%, F1.2)

	Minimum illumination (30 IRE)
Color	0.25 lx (0.025 fc)
Monochrome	0.08 lx (0.008 fc)

Day/Night	Color, Monochrome, Auto
White Balance	ATW (2500 to 10000K), ATWhold and manual Indoor and Outdoor ATW
Shutter	Automatic Electronic Shutter (AES) Fixed (1/30 [1/25] to 1/15000) selectable Default shutter
Backlight compensation	Off/Auto/IAE
Wide dynamic range	On/off
Noise reduction	Intelligent Dynamic Noise Reduction (IDNR) with separate temporal and spatial adjustments
Contrast enhancement	On/off
Sharpness	Sharpness enhancement level selectable
Dynamic Range	90 dB HDR 106 dB HDR (with IAE)
Privacy Masking	Four independent areas, fully programmable
Video Motion Analysis	Intelligent Video Analysis

Audio

Standard	AAC G.711, 8kHz sampling rate L16, 16kHz sampling rate
Signal-to-noise ratio	> 50 dB
Audio Streaming	Full duplex / half duplex

Input/output

Analog Video out (service only)	CVBS (PAL/NTSC), 1 Vpp, 2.5 mm jack, 75 Ohm (non-protected)
Audio	1 x mono line in, 1 x mono line out
• signal line in	12 kOhm typical, 1 Vrms max
• signal line out	1 Vrms at 1.5 kOhm typical,
Alarm	2 inputs
• activation voltage	+5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kOhm pull-up resistor)
Relay	1 output
• voltage	30 VAC or +40 VDC max. Maximum 0.5 A continuous, 10VA

Local Storage

Internal RAM	10 s pre-alarm recording
Memory card slot	Supports SDHC and SDXC microSD cards
Recording	Continuous recording, ring recording. alarm/events/schedule recording

Software Control

Unit Configuration	Via web browser or Configuration Manager
Software update	Remote programmable

Network

Protocols	IPv4, IPv6, UDP, TCP, HTTP, HTTPS, RTP/RTCP, IGMP V2/V3, ICMP, ICMPv6, RTSP, FTP, Telnet, ARP, DHCP, SNTP, SNMP (V1, MIB-II), 802.1x, DNS, DNSv6, DDNS, SMTP, iSCSI, UPnP (SSDP), DiffServ (QoS), LLDP, SOAP, Dropbox, CHAP, Digest Authentication.
Encryption	TLS 1.0, SSL, DES, 3DES, AES (optional)
Ethernet	10/100 Base-T, auto-sensing, half/full duplex
Ethernet connector	RJ45
Connectivity	ONVIF Profile S, Auto-MDIX

Optical

Lens	Varifocal SR (Super Resolution)
Focus control	Automatic focus adjustment
Iris control	Automatic iris control
Viewing angle	
1.8 to 3 mm	Wide 98 x 67° (H x V)
	Tele 70° x 43° (H x V)
3.8 to 13 mm	Wide: 63° x 36° (H x V)
	Tele: 19° x 10.5° (H x V)
9 to 40 mm	Wide: 26° x 15° (H x V)
	Tele: 6.2° x 3.5° (H x V)

Mechanical

Dimensions (D x H)	208 x 151 mm (8.2 x 5.95 in)
Weight	2200 g (4.85 lb)
Color	RAL 9007 Metallic Titanium

Environmental

Operating Temperature	-50°C to +50°C (-58°F to 122°F)
Cold Start Temperature	-20°C (-4°F)
Storage Temperature	-30°C to +70°C (-22°F to +158°F)
Operating Humidity	20% to 100% RH
Storage Humidity	up to 100% RH
Vandal Resistance	IK10
Ingress Resistance	IP67, NEMA-4X

Ordering information

FLEXIDOME IP dynamic 7000 RD
High-performance IP dome camera for HD surveillance. HDR; 1080p30; IVA; IP67; >IK10; IDNR; IAE; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 1.8 to 3 mm SR lens
Order number **NDN-932V02-IP**

FLEXIDOME IP dynamic 7000 RD
High-performance IP dome camera for HD surveillance. HDR; 1080p30; IVA; IP67; >IK10; IDNR; IAE; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 3.8 to 13 mm SR lens
Order number **NDN-932V03-IP**

FLEXIDOME IP dynamic 7000 RD
High-performance IP dome camera for HD surveillance. HDR; 1080p30; IVA; IP67; >IK10; IDNR; IAE; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 9 to 40 mm SR lens
Order number **NDN-932V09-IP**

Accessories

VDA-832FHD-WMT
Wall mount bracket for HD FlexiDomes
Order number **VDA-832FHD-WMT**

VDA-832FHD-PMT
Pendant pipe mount bracket for HD FlexiDomes
Order number **VDA-832FHD-PMT**

LTC 9213/01 Pole Mount Adapter
Flexible pole mount adapter for camera mounts. Max. 9 kg (20 lb); 3 to 15 inch diameter pole; stainless steel straps
Order number **LTC 9213/01**

S1460 Service/Monitor Cable
2.5 mm jack to BNC video connector cable. 1 m
Order number **S1460**

VIDEOJET XTC XF Video Transcoder
High-performance video transcoder. H.264; CF card slot; ROI; max resolution 1080p; 2 channels
Order number **VJT-XTCXF**

Software Options

BVIP AES 128 Bit Encryption
Site licence for BVIP AES 128-bit encryption. Enables encrypted communication between BVIP devices and management stations
Order number **MVS-FENC-AES**

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